FIG. 1

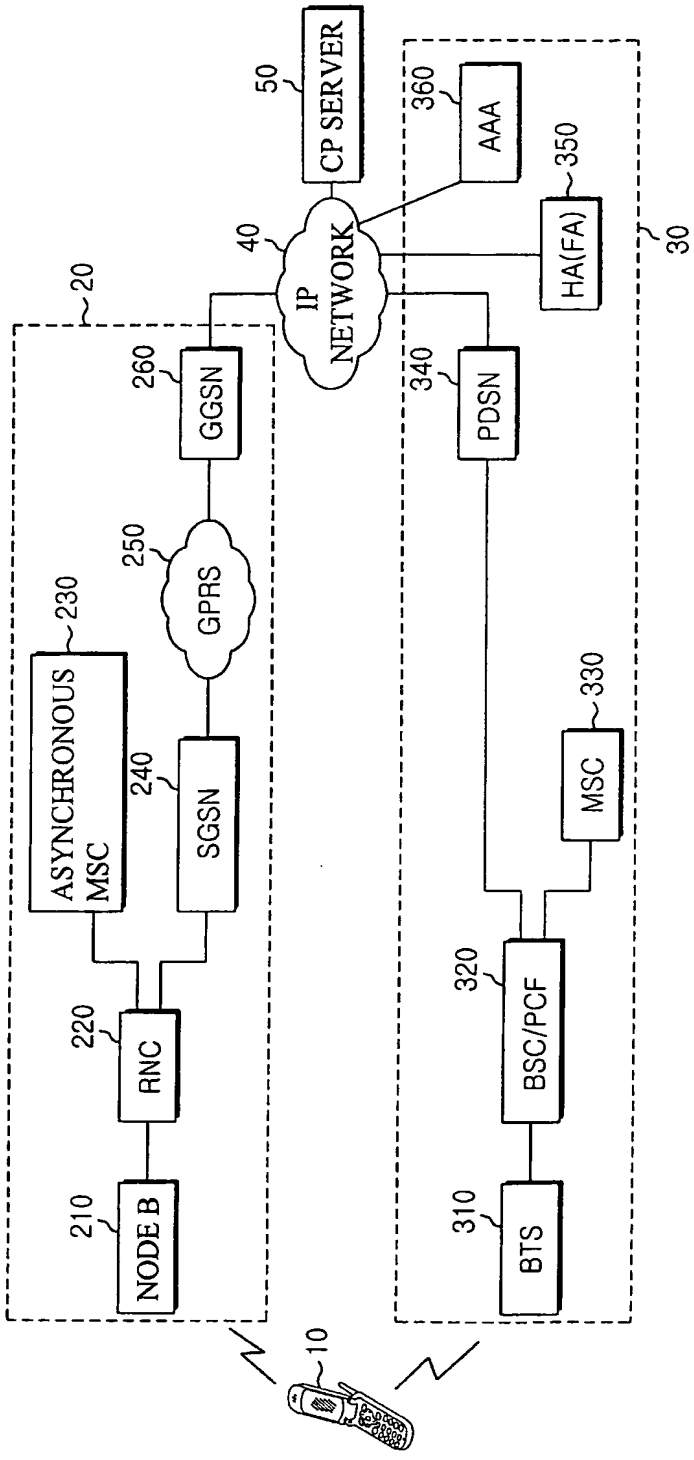

50
CP SERVER
360
AAA
350
HA(FA)
30
40
IP NETWORK
20
260
GGSN
340
PDSN
250
GPRS
230
ASYNCHRONOUS MSC
240
SGSN
330
MSC
220
RNC
320
BSC/PCF
210
NODE B
310
BTS
10

FIG. 2

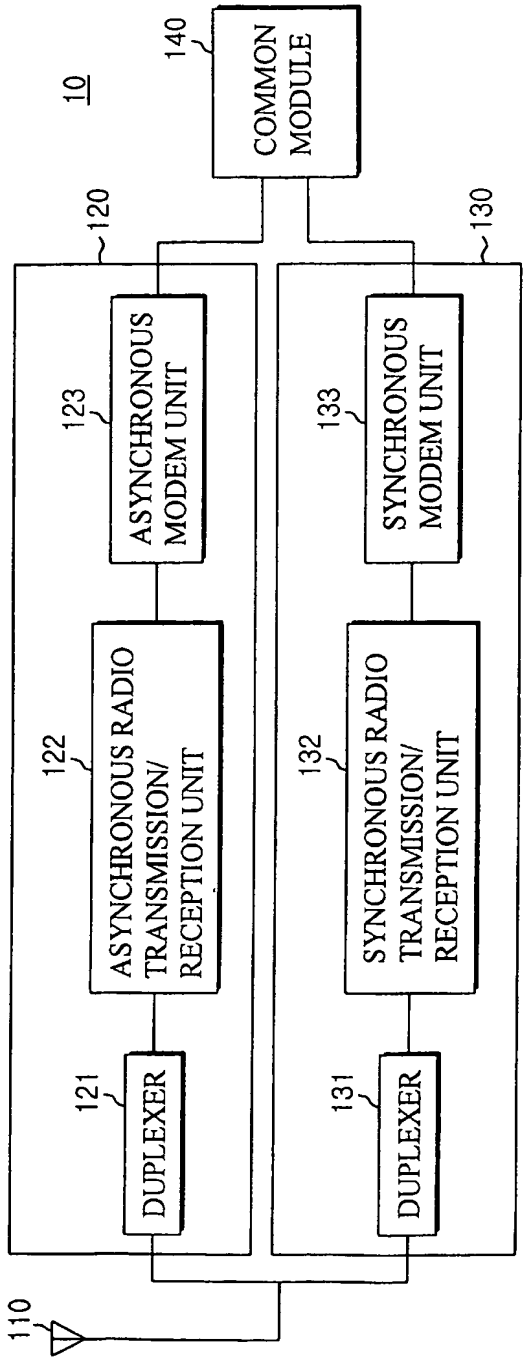

10
140
COMMON MODULE
120
130
123
ASYNCHRONOUS MODEM UNIT
133
SYNCHRONOUS MODEM UNIT
122
ASYNCHRONOUS RADIO TRANSMISSION/ RECEPTION UNIT
132
SYNCHRONOUS RADIO TRANSMISSION/ RECEPTION UNIT
121
DUPLEXER
131
DUPLEXER
110

FIG. 3

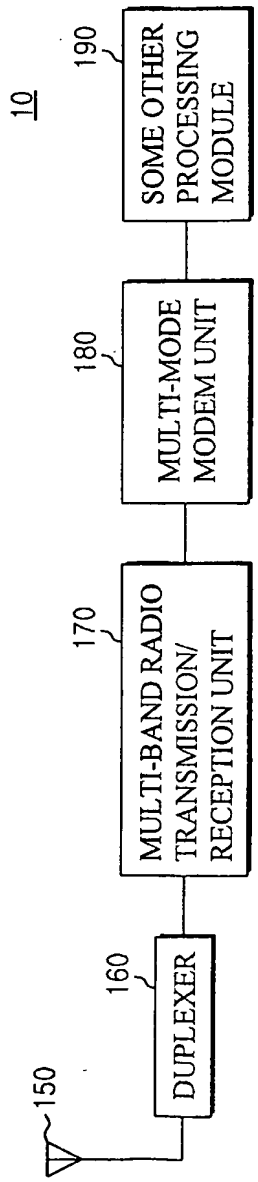

10
190
SOME OTHER PROCESSING MODULE
180
MULTI-MODE MODEM UNIT
170
MULTI-BAND RADIO TRANSMISSION/ RECEPTION UNIT
160
DUPLEXER
150

FIG. 4A

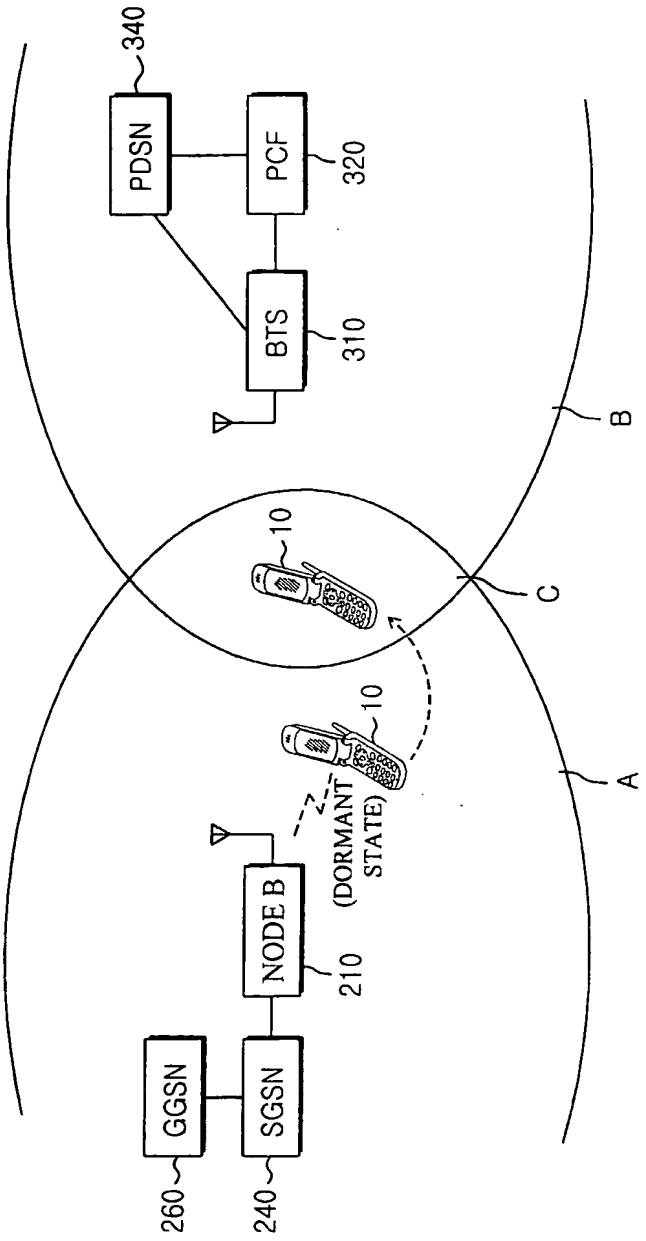

340
PDSN
PCF
320
BTS
310
B
10
C
10
A
(DORMANT STATE)
NODE B
210
GGSN
SGSN
260
240

FIG. 4B

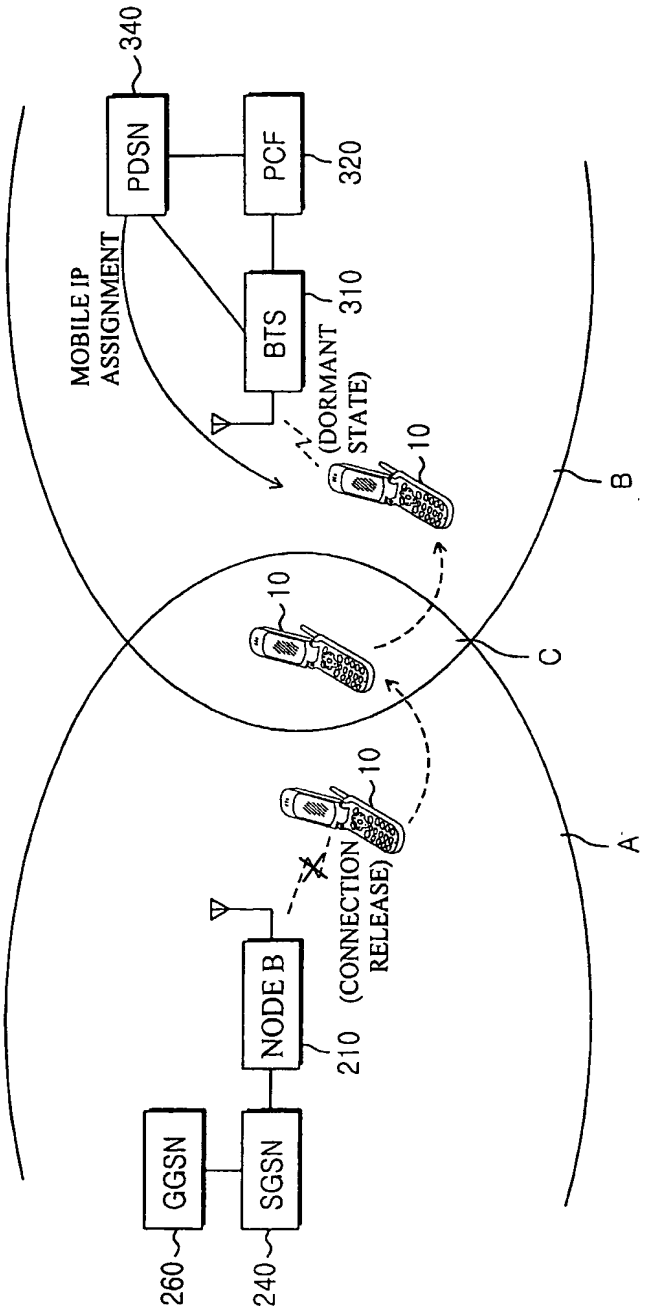

340
PDSN
PCF
320
MOBILE IP ASSIGNMENT
BTS
310
(DORMANT STATE)
10
B
10
C
10
A
(CONNECTION RELEASE)
NODE B
210
GGSN
SGSN
260
240

FIG. 5A

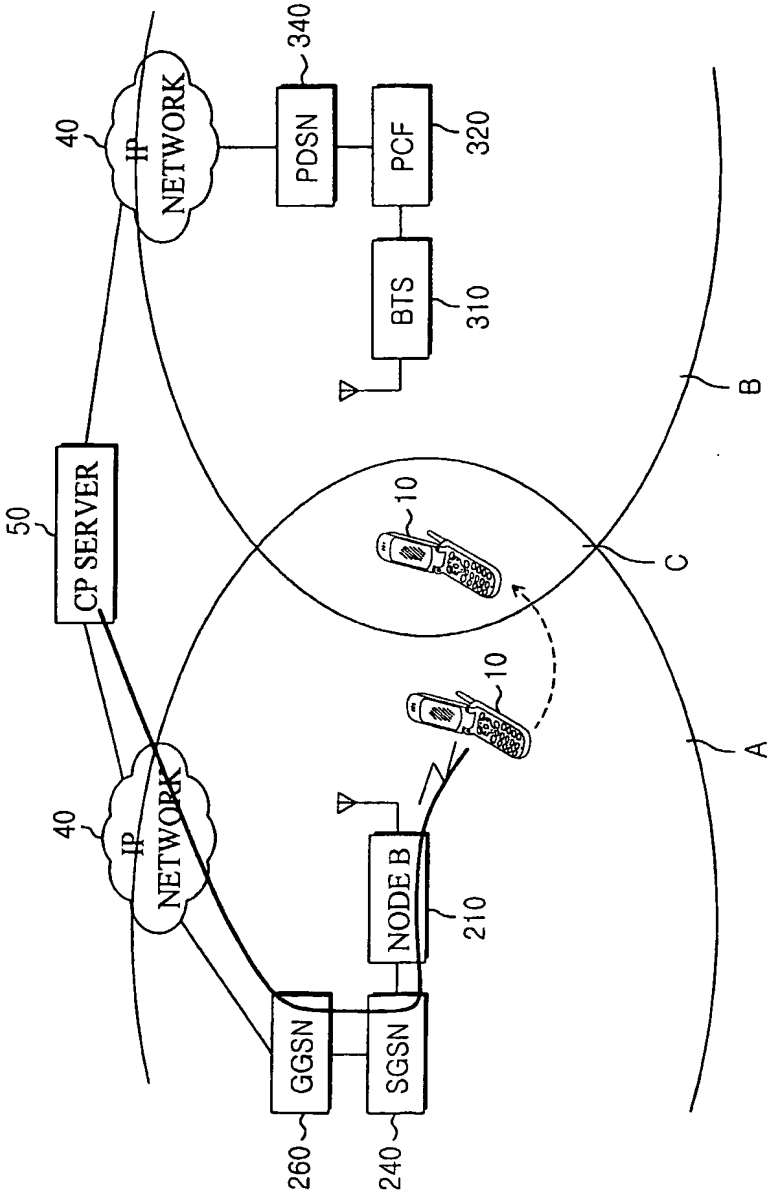

340
40
IP NETWORK
PDSN
PCF
320
BTS
310
B
50
CP SERVER
10
C
10
A
40
IP NETWORK
NODE B
210
GGSN
SGSN
260
240

FIG. 5B

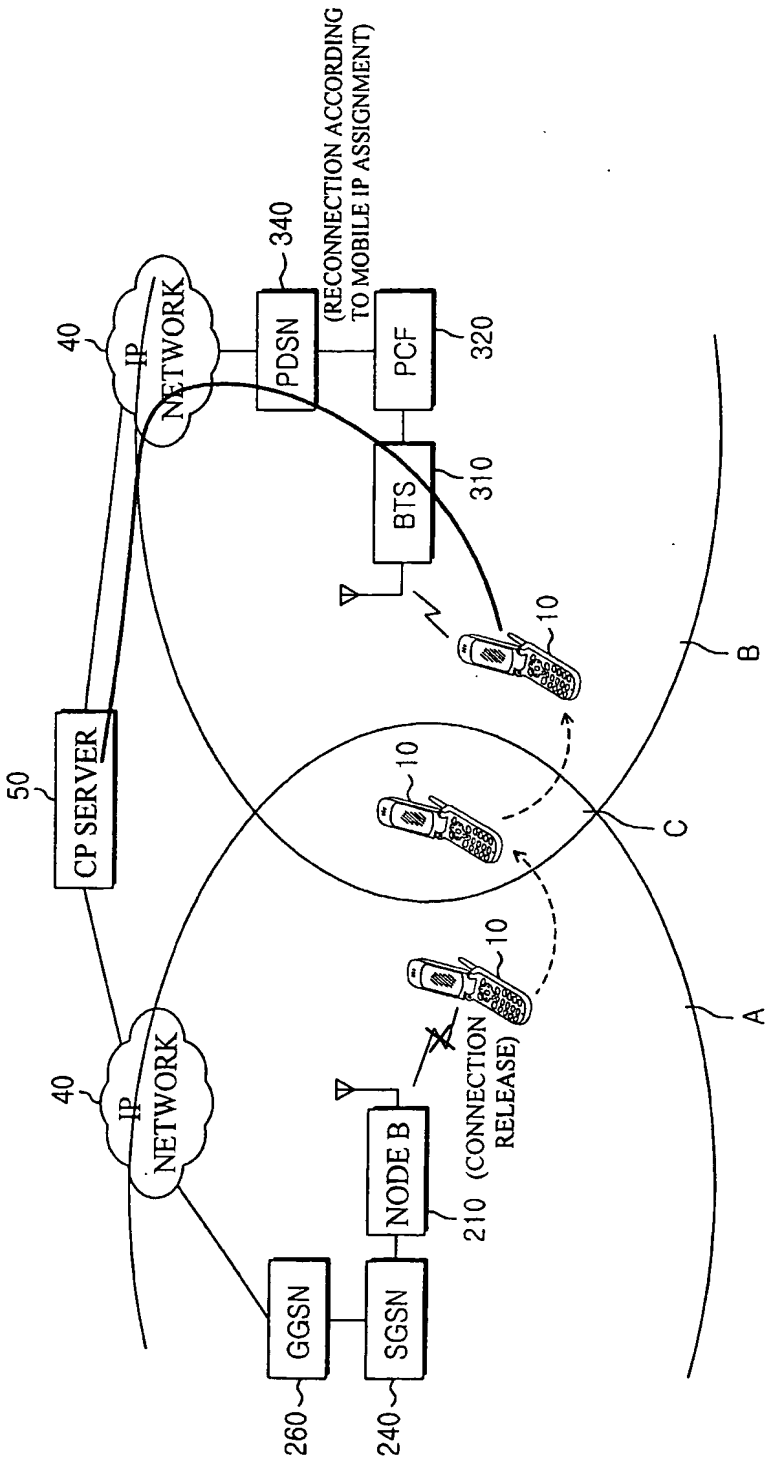

(RECONNECTION ACCORDING TO MOBILE IP ASSIGNMENT)
340
PDSN
PCF
320
40
IP NETWORK
BTS
310
10
B
50
CP SERVER
10
C
10
A
40
IP NETWORK
(CONNECTION RELEASE)
NODE B
210
GGSN
SGSN
260
240

FIG. 6

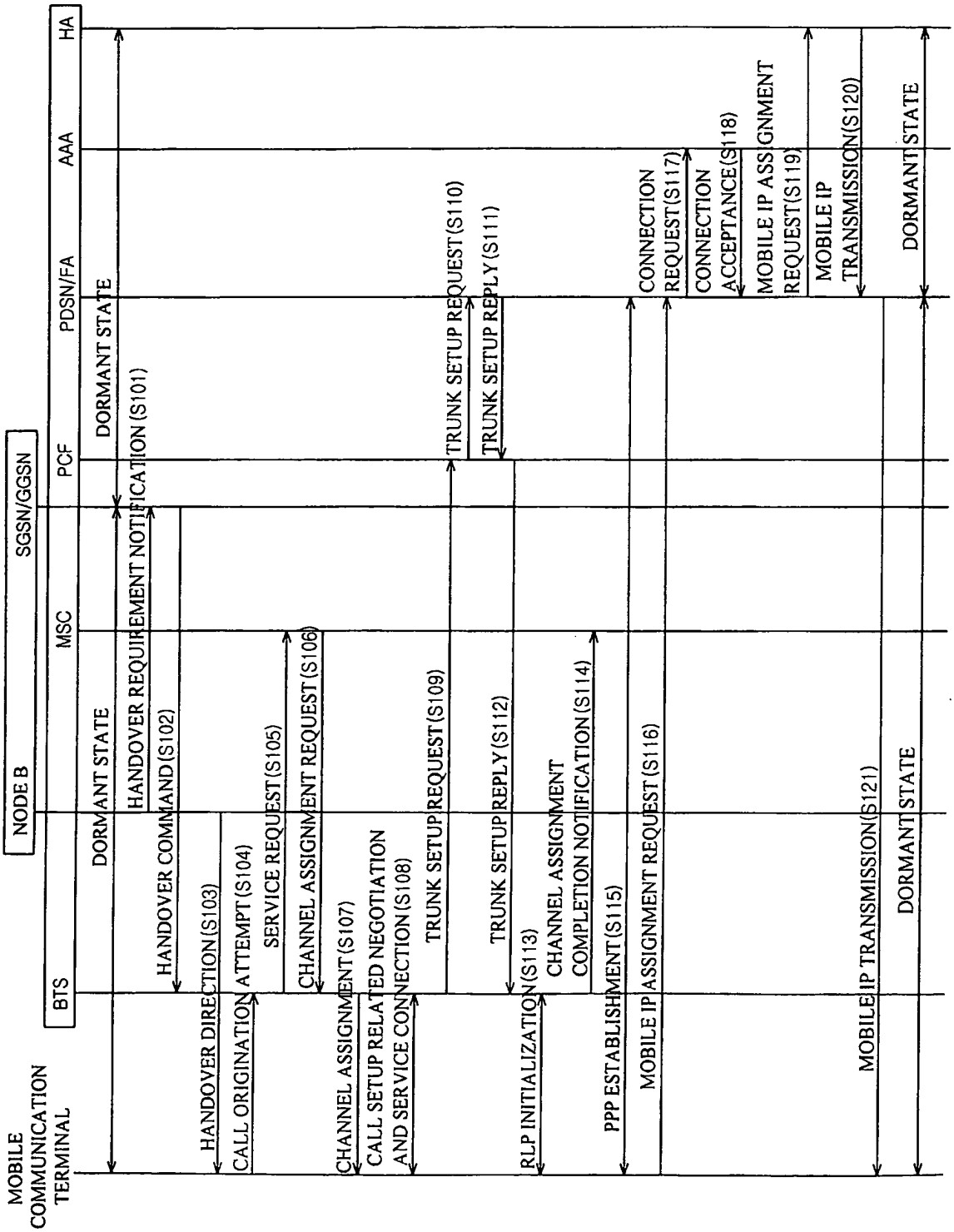

MOBILE COMMUNICATION TERMINAL
BTS
NODE B
MSC
SGSN/GGSN
PCF
PDSN/FA
AAA
HA
DORMANT STATE
HANDOVER REQUIREMENT NOTIFICATION (S101)
HANDOVER COMMAND (S102)
HANDOVER DIRECTION (S103)
CALL ORIGINATION ATTEMPT (S104)
SERVICE REQUEST (S105)
CHANNEL ASSIGNMENT REQUEST (S106)
CHANNEL ASSIGNMENT (S107)
CALL SETUP RELATED NEGOTIATION AND SERVICE CONNECTION (S108)
TRUNK SETUP REQUEST (S109)
TRUNK SETUP REQUEST (S110)
TRUNK SETUP REPLY (S111)
TRUNK SETUP REPLY (S112)
RLP INITIALIZATION (S113)
CHANNEL ASSIGNMENT COMPLETION NOTIFICATION (S114)
PPP ESTABLISHMENT (S115)
MOBILE IP ASSIGNMENT REQUEST (S116)
CONNECTION REQUEST (S117)
CONNECTION ACCEPTANCE (S118)
MOBILE IP ASSIGNMENT REQUEST (S119)
MOBILE IP TRANSMISSION (S120)
MOBILE IP TRANSMISSION (S121)
DORMANT STATE
DORMANT STATE

FIG. 7

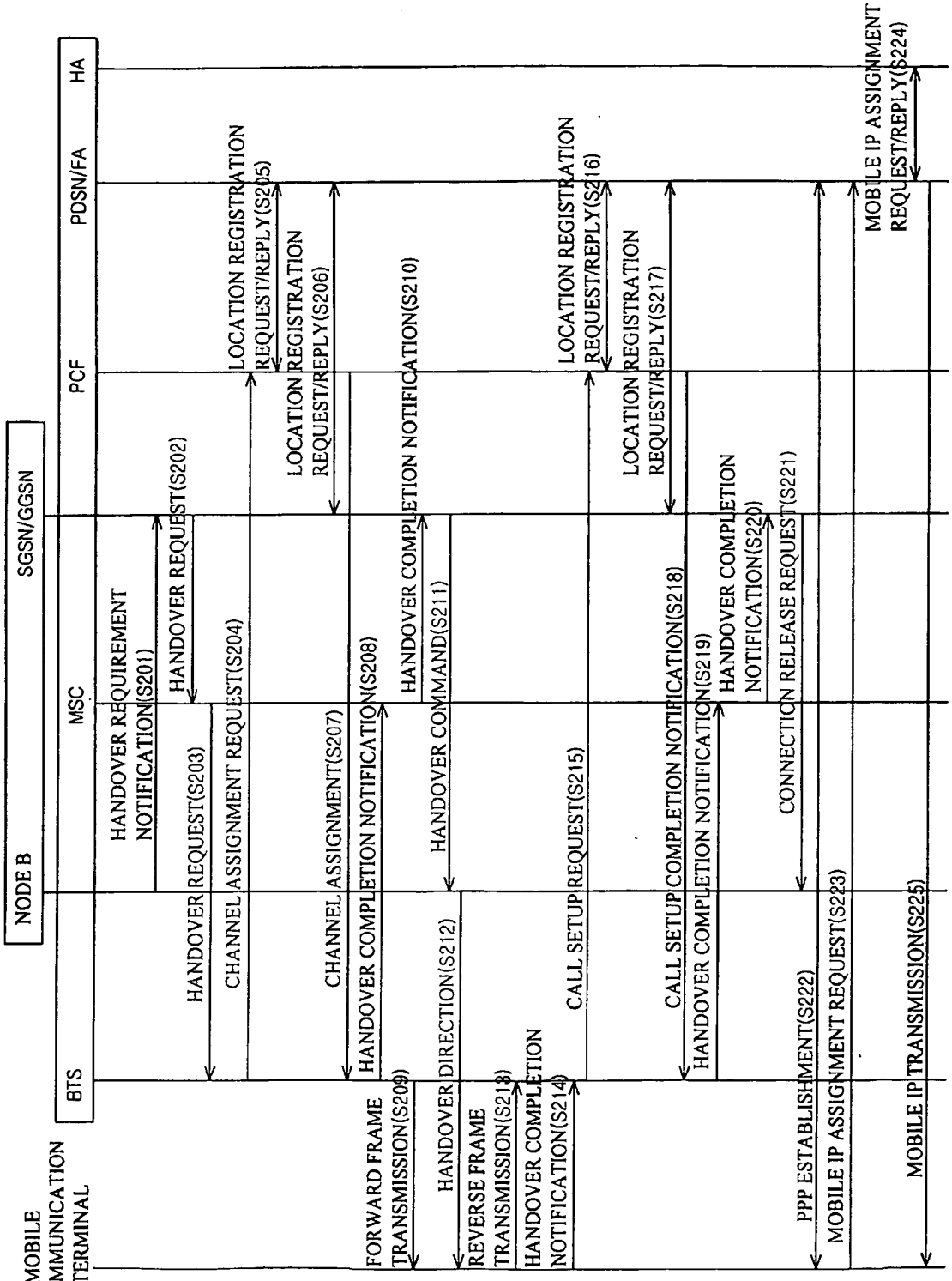

MOBILE COMMUNICATION TERMINAL
NODE B
BTS
SGSN/GGSN
MSC
PCF
PDSN/FA
HA
HANDOVER REQUIREMENT NOTIFICATION(S201)
HANDOVER REQUEST(S202)
HANDOVER REQUEST(S203)
CHANNEL ASSIGNMENT REQUEST(S204)
LOCATION REGISTRATION REQUEST/REPLY(S205)
LOCATION REGISTRATION REQUEST/REPLY(S206)
CHANNEL ASSIGNMENT(S207)
HANDOVER COMPLETION NOTIFICATION(S208)
FORWARD FRAME TRANSMISSION(S209)
HANDOVER COMPLETION NOTIFICATION(S210)
HANDOVER COMMAND(S211)
HANDOVER DIRECTION(S212)
REVERSE FRAME TRANSMISSION(S213)
HANDOVER COMPLETION NOTIFICATION(S214)
CALL SETUP REQUEST(S215)
LOCATION REGISTRATION REQUEST/REPLY(S216)
LOCATION REGISTRATION REQUEST/REPLY(S217)
CALL SETUP COMPLETION NOTIFICATION(S218)
HANDOVER COMPLETION NOTIFICATION(S219)
HANDOVER COMPLETION NOTIFICATION(S220)
CONNECTION RELEASE REQUEST(S221)
PPP ESTABLISHMENT(S222)
MOBILE IP ASSIGNMENT REQUEST(S223)
MOBILE IP ASSIGNMENT REQUEST/REPLY(S224)
MOBILE IP TRANSMISSION(S225)

FIG. 8

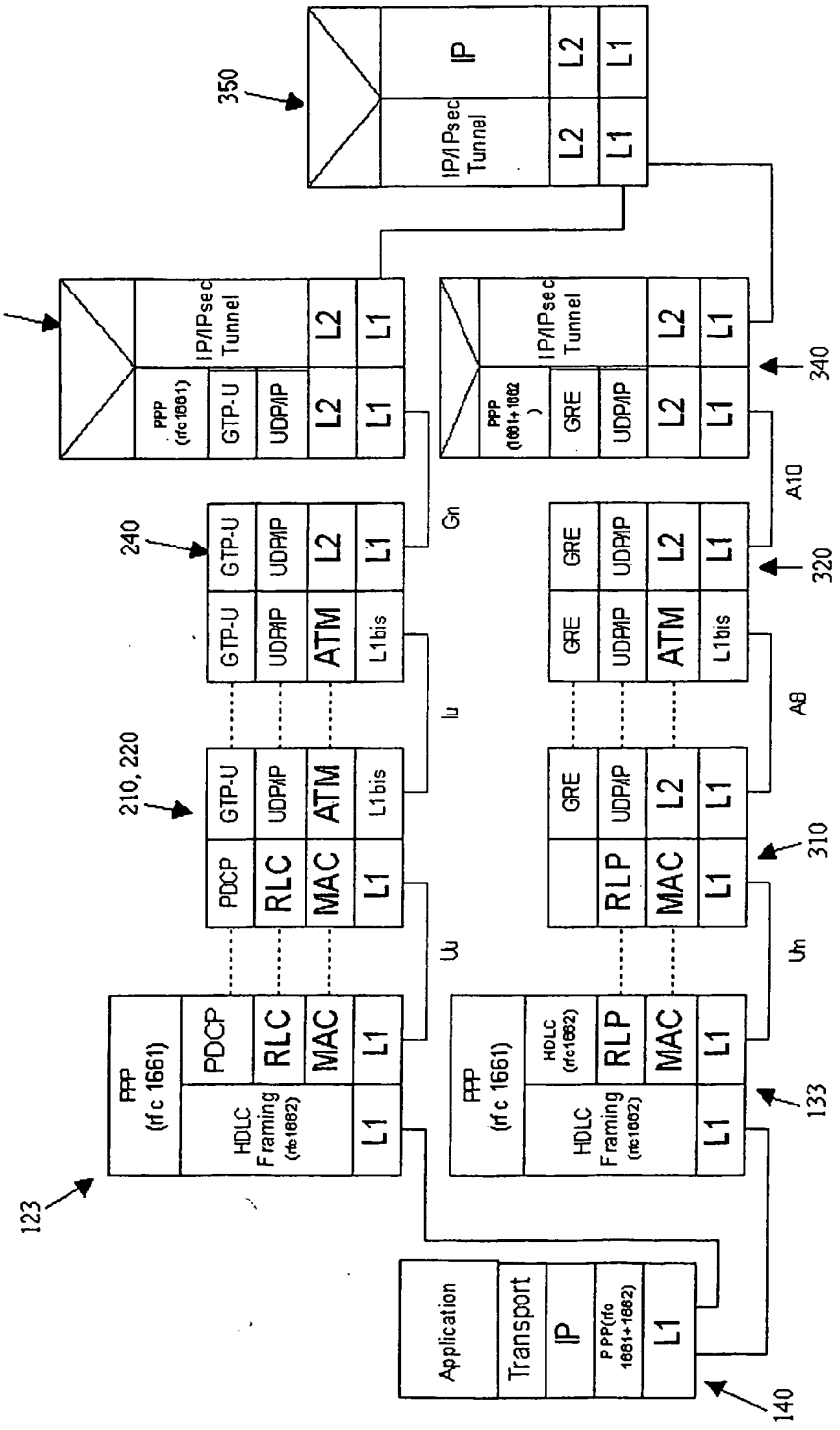
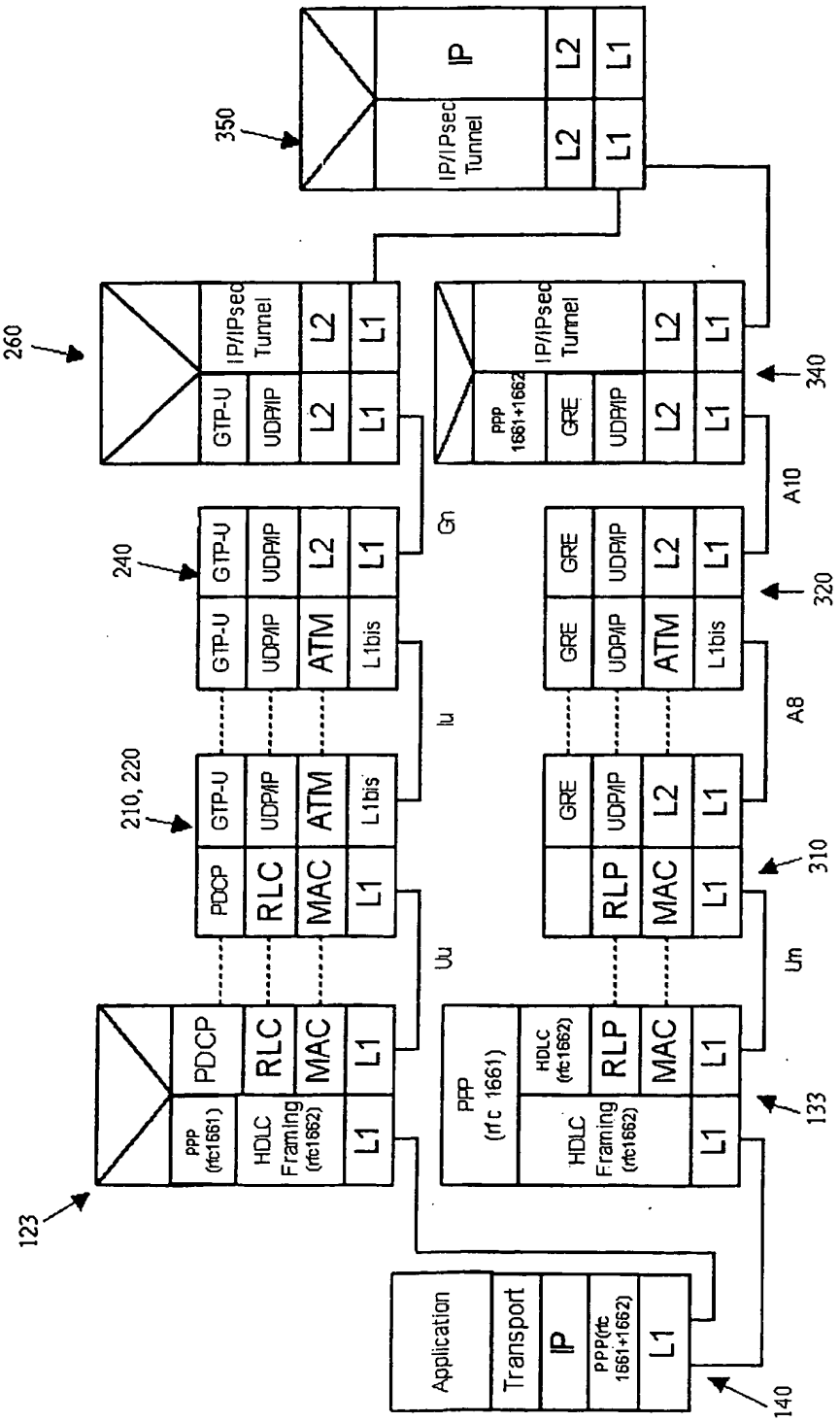

350
IP
IP/IPsec Tunnel
L2
L1
260
PPP (rfc1661)
GTP-U
UDP/IP
IP/IPsec Tunnel
PPP (1661+1662)
GRE
340
240
ATM
L1bis
Gn
A10
320
210, 220
PDCP
RLC
MAC
Iu
A8
310
Uu
Un
PPP (rfc 1661)
HDLC Framing (rfc1662)
HDLC (rfc1662)
RLP
133
123
Application
Transport
IP
PPP(rfc 1661+1662)
140

FIG. 9


350
IP
IP/IPsec Tunnel
L2
L1
260
GTP-U
UDP/IP
IP/IPsec Tunnel
PPP 1661+1662
GRE
340
240
ATM
L1bis
320
210, 220
PDCP
RLC
MAC
310
RLP
HDLC (rfc1662)
PPP (rfc 1661)
HDLC Framing (rfc1662)
133
123
Application
Transport
PPP(rfc 1661+1662)
140
Gn
Iu
Uu
A10
A8
Um